DEPARTMENT OF NOTES. REVIEWS. ETC.

It is the purpose, in this department, to present from time to time brief original notes, both of methods of work and of results, by members of the Society. All members are invited to submit such items. In the absence of these there will be given a few brief abstracts of recent work of more general interest to students and teachers. There will be no attempt to make these abstracts exhaustive. They will illustrate progress without attempting to define it, and will thus give to the teacher current illustrations, and to the isolated suggestions of suitable fields of investigation.—[Editor.]

NOTES ON HANDLING PROTOZOA IN PURE LINE WORK

During the past year the writer has been engaged in experiments on the inheritance of extra contractile vacuoles in a new race of Paramœcium and has worked out some methods of technique that have so facilitated his work that he is led to publish them in hope that they may be of benefit to others.

Maintaining pure cultures.—The greatest care is necessary to prevent pure line cultures from becoming mixed with others. Even with labelled pipettes accidents may occur. The scheme shown in

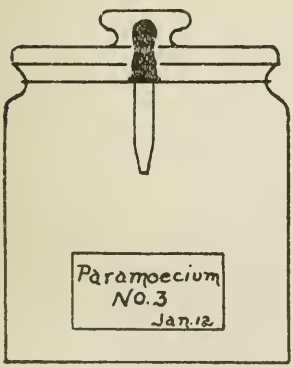

FIG. 1

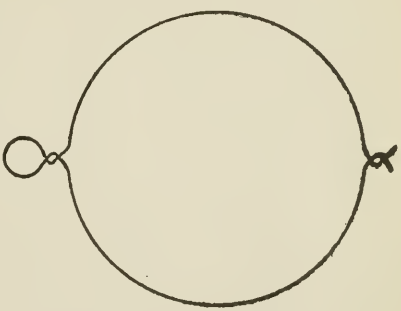

FIG. 2

the cut was recently devised and has proved most convenient. A piece of soft brass wire is shaped about some round object of a diameter slightly larger than a pipette and is held by several twists. Then the long ends of the wire are bent around the culture jar and again fastened by twisting the ends. In the jars used by the writer (humidors bought at any five and ten cent store) there is a convenient groove near the top into which the wire fits nicely. When finished the small circle protrudes from the jar and into

this ring the pipette is dropped giving the appearance of Fig. 1. With this method pipettes are always at hand and there is no danger of mixing the lines by transfering animals (clinging to the walls of a pipette) from one culture to another.

Preparation of watch glasses.—Syracuse watch glasses have been used for single individuals throughout the writer's work and considerable difficulty was experienced at first in locating animals which were close to the edge of the container. They frequently found their way there as the fluid had a tendency to spread evenly over the surface of the watch glass. Several methods were tried to correct this tendency of the culture medium to spread over the bottom but the best one was hit upon accidentally. There was a trace of paraffin in a pan in which the glasses were being sterilized one day and this coated the glasses imperciptibly but sufficiently to give the liquid no hold on the glass. In vessels treated in this way the surface tension of the medium tends to draw it into a spherical mass. Should the liquid roll to the edge of the glass where the animals would be hidden from view, it is easily rolled out again by tilting the glass and none of the animals in the drop are left behind. When animals are being kept in very small drops of water the writer has placed as many as twenty individual drops of liquid containing protozoa in a single watch glass and they have not run together. The surface tension of the liquid draws it up, when on a paraffined surface, until it gives a very fair picture of a drop of mercury. Furthermore, being contracted to the smallest area possible there is less evaporation than when the same amount of fluid is spread out and the chances of losing a valuable specimen through drying are very much less. The writer's practice is to use a piece of paraffin about the size of a pea to a quart of water. This will be sufficient for a surprising number of watch glasses. When the sterilized glasses are removed they are wiped while hot and polished. No paraffin is visible although a faint trace of it can be felt.

Making Pipettes.—In this work the most useful pipette has been found to be one that has a short but very fine tip. The usual methods of drawing them tend to make a pipette with a rather long tip as the glass tube has been heated for some distance

equally along its length. To cut down the area heated the tube to be drawn is placed transversely across a fish tail flame, which heats equally an area certainly not more than a quarter of an inch at found their way there as the fluid had a tendency to spread evenly the most, and the tube is pulled with considerable force when the glass is just commencing to melt. Several trials will show the best time to start pulling. This method gives pipettes with very fine tips not more than from three-quarters to one and one-half inches long.

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NOTES ON EMBEDDING IN PARAFFIN

When embedding very small objects, such as insect larvæ or small flowers or anthers, in paraffin it is most convenient to orient them one behind the other. This method allows a single block to be made of from three or four to a dozen pieces of tissue and these may be cut in one ribbon. This obviously eliminates a great deal of the labor involved in making a block of each separate object, cementing it to the holder, trimming it and adjusting the microtome each time. In the ribbon it is easy to see where one piece of tissue ends and the other begins as there is usually several blank sections of paraffin between them. It is relatively simple to arrange the tissue in line under a carbon bulb with warm needles but a difficulty is met with when an attempt is made to place the paraffin mold in water for cooling. The material is shaken from position and must be reoriented. This had been overcome in the following way. A watch glass is used as a mold for embedding small objects and a petri dish is convenient for larger tissue. When the tissue is ready to be embedded the dish is heated to the melting point of the paraffin under the electric bulb. It is then placed in a crystallization dish with two slides beneath it to prevent it from touching the bottom of the container. Paraffin is then poured into the small dish and the objects oriented as desired the heat of the electric bulb keeping the paraffin melted. Then the light is turned off and cold water is poured into the crystallization dish. Since the dish containing the paraffin is raised from the bottom the water flows under it and soon solidifies the paraffin in the lower part of